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U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

P21998

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)

10/070431

INTERNATIONAL APPLICATION NO.

PCT/EP00/10298

INTERNATIONAL FILING DATE

19 October 2000

PRIORITY DATE CLAIMED

16 November 1999

TITLE OF INVENTION

METHOD FOR PRODUCING FITTINGS FOR THE MECHANICAL PROCESSING OF A FIBROUS MATERIAL SUSPENSION

APPLICANT(S) FOR DO/EO/US

Hans- Herrmann KLEINSCHNITTGER, Volker NIGGL, Ronald SIGL, Josef SCHNEID, Harald SELDER and Paul-Wilhelm SEPKE

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information.

1. ☒ This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to promptly begin national examination procedures (35 U.S.C. 371(f)).
4. ☒ The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☒ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371 (c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☒ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
"Unexecuted"
10. ☒ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (U.S.C. 371(c)(5)).

Items 11 to 16 below concern other document(s) or information included:

11. Assignee: VOITH PAPER PATENT GMBH, of Heidenheim, GERMANY
12. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
13. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
14. ☒ A FIRST preliminary amendment.
☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ Figure of Drawing to be published
18. ☒ Other items or information:
 - International Application as published in Germany.
 - PCT/IPEA/416 (in Germany).
 - PCT/IPEA/409 International Preliminary Examination Report with two sheets of modified pages (in Germany).
 - PCT/IB/332.
 - PCT/IB/308.
 - PCT/ISA/210 (in German & English).
 - PCT/ISA/220 (in German).
 - PCT/RO/101 PCT Request (in German).
 - PCT/IB/304.
 - PCT/IB/301.
 - PCT/RO/105 (in German).
 - Partial English translation of PCT/IPEA/409 with two pages of modified sheets.
 - Cover Letter under 35 U.S.C. 371 AND 37 C.F.R. 1.495.
 - Cover Letter Submitting Amended Pages of Application.
 - Claim of Priority.

U.S. APPLICATION NO. (If known, see 37 CFR 1.5) **10/070431**

INTERNATIONAL APPLICATION NO.
PCT/EPOO/10298

ATTORNEY'S DOCKET NUMBER
P21998

19. ☒ The following fees are submitted:

CALCULATIONS PTO USE ONLY

Basic National Fee (37 CFR 1.492(a)(1)-(5)):

Search report has been prepared by the EPO or JPO. \$ 890.00

International preliminary examination fee paid to USPTO (37 CFR 1.482). \$ 710.00

No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)). \$ 740.00

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO. \$1,040.00

International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4). \$ 100.00

ENTER APPROPRIATE BASIC FEE AMOUNT =

\$890.00

Surcharge of \$130.00 for furnishing the oath or declaration later than 20 30 months from the earliest claimed priority date (37 CFR 1.492(e)).

\$ 0.00

Claims	Number Filed	Number Extra	RATE	
Total Claims	18 - 20 =	0	X \$18.00	\$ 0.00
Independent Claims	3 - 3 =	0	X \$84.00	\$ 0.00
Multiple dependent claim(s) (if applicable)			+ \$280.00	\$ 0.00
TOTAL OF ABOVE CALCULATIONS =				\$890.00
Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				\$ 0.00
SUBTOTAL =				890.00
Processing fee of \$130.00 for furnishing the English translation later than <u>20</u> <u>30</u> months from the earliest claimed priority date (37 CFR 1.492(f)).				0.00
Extension of Time fee in the amount of \$				0.00
TOTAL NATIONAL FEE =				890.00
Fee for recording the enclosed assignment (37 CFR 1.21(h). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				0.00
TOTAL FEES ENCLOSED =				890.00
				Amount to be refunded \$
				Charged \$

\$ 0.00

Total Claims 18 - 20 = 0 X \$18.00 \$ 0.00

Independent Claims 3 - 3 = 0 X \$84.00 \$ 0.00

Multiple dependent claim(s) (if applicable) + \$280.00 \$ 0.00

TOTAL OF ABOVE CALCULATIONS = \$890.00

Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2. \$ 0.00

SUBTOTAL = 890.00

Processing fee of \$130.00 for furnishing the English translation later than 20 30 months from the earliest claimed priority date (37 CFR 1.492(f)). + 0.00

Extension of Time fee in the amount of \$ 0.00

TOTAL NATIONAL FEE = 890.00

Fee for recording the enclosed assignment (37 CFR 1.21(h). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property + 0.00

TOTAL FEES ENCLOSED = 890.00

Amount to be refunded \$

Charged \$

a. ☒ A check in the amount of \$890.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. in the amount of \$ to cover the above fees.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 19-0089.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO CUSTOMER NO. 7055 AT THE PRESENT ADDRESS OF:

Neil F. Greenblum
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SIGNATURE

Neil F. Greenblum
NAME

28,394
REGISTRATION NUMBER

P21998.A01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants :	H. KLEINSCHNITTGER et al.)	Applications Branch
)	
Appln. No. :	Not yet assigned)	
)	
Filed :	October 19, 2000)	
)	
For :	METHOD FOR PRODUCING FITTINGS FOR THE MECHANICAL PROCESSING OF A FIBROUS MATERIAL SUSPENSION		

**PRELIMINARY AMENDMENT AND COVER LETTER
SUBMITTING AMENDED PAGES OF APPLICATION**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

Enclosed please find a partial English language translation of the concurrently submitted International Preliminary Examination Report - Form PCT/IPEA/409 (hereinafter "Report"). Applicants note that this Report was drawn on pages of description 1 - 5 and claims 5 - 18 as originally filed, and amended pages of description 2a and claims 1 - 4 as filed June 22, 2001, and includes as an Annex amended pages of description 2a and claims 1 - 4 (in German). For the Examiner's convenience, an English translation of the Annex is submitted herewith, in which each sheet is identified on the bottom of the page as "MODIFIED SHEET." Moreover, while the Report indicates that it is based upon a part of claim 4 as originally submitted and a part of claim 4 as amended June 22, 2001, Applicants submit that this amounts to examination of amended claim 4.

Based upon the submission of the amended sheets of claims, Applicants respectfully request examination on the merits of the application containing pages of description 1 - 5 and claims 5 - 18 as originally submitted and amended pages of description 2a and claims 1 - 4 (in place of originally filed claims 1 - 4).

Additionally, prior to the examination of the above-identified application including replacement claims 1 - 4, amendment of claims as follows, is respectfully requested to remove multiple dependent claims.

IN THE CLAIMS

Please amend the claims as follows (Marked-up copies of the amended claims are attached as an Appendix):

4. (Amended) Method according to claim 1, characterized in that the thermal expansion coefficient in the contact surfaces (3, 4) of the base body (1, 1') and of the processing element (2, 2') is identical within $\pm 25\%$.

5. (Amended) Method according to claim 1, characterized in that the base body (1, 1') and processing element (2, 2') are joined together at their contact surfaces (3, 4) by adhesive forces.

8. (Amended) Method according to claim 1, characterized in that the base body (1, 1') and the corresponding processing element (2, 2') are joined together by several spaced mounting elements.

9. (Amended) Method according to claim 1, characterized in that strips (4) are

produced towards the fibrous material side during manufacture of the processing element (2, 2').

11. (Amended) Method according to claim 9, characterized in that the strips (4) are provided with a projection (c) above the base of the groove, which is between 1 and 20 mm.

12. (Amended) Method according to claim 1, characterized in that the processing elements (2, 2') are provided with an essentially smooth surface on the faces (11).

13. (Amended) Method according to claim 1, characterized in that the processing elements (2, 2') are provided with an essentially porous surface (11) on the faces (11').

14. (Amended) Method according to claim 1, characterized in that at least one recess (6') is made in the base body (1'), into which an elevation (7') on the processing element (2, 2') fits when the processing element (2, 2') and base body (1') are joined.

15. (Amended) Method according to claim 1, characterized in that the base body (1, 1') is embodied in annular form.


16. (Amended) Method according to claim 1, characterized in that the form of the base body (1, 1') is essentially that of an annular segment.

REMARKS

Entry of the foregoing replacement sheets upon which the International Preliminary Examination Report is based and amendment of the claims are respectfully requested.

Should there be any questions, the Examiner is invited to contact the undersigned at the below listed number.

Respectfully submitted,
H. KLEINSCHNITTGER et al.



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March 18, 2002
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APPENDIX

Marked-Up Copies of the Amended Claims:

4. (Amended) Method according to claim 1, [2 or 3,] characterized in that the thermal expansion coefficient in the contact surfaces (3, 4) of the base body (1, 1') and of the processing element (2, 2') is identical within $\pm 25\%$.

5. (Amended) Method according to claim 1, [2, 3 or 4] characterized in that the base body (1, 1') and processing element (2, 2') are joined together at their contact surfaces (3, 4) by adhesive forces.

8. (Amended) Method according to [one of the preceding claims] claim 1, characterized in that the base body (1, 1') and the corresponding processing element (2, 2') are joined together by several spaced mounting elements.

9. (Amended) Method according to [one of the preceding claims] claim 1, characterized in that strips (4) are produced towards the fibrous material side during manufacture of the processing element (2, 2').

11. (Amended) Method according to [one of claims 9 or 10] claim 9, characterized in that the strips (4) are provided with a projection (c) above the base of the groove, which is between 1 and 20 mm.

12. (Amended) Method according to [one of the preceding claims] claim 1, characterized in that the processing elements (2, 2') are provided with an essentially smooth surface on the faces (11).

13. (Amended) Method according to [one of claims 1 through 11] claim 1, characterized in that the processing elements (2, 2') are provided with an essentially porous surface (11) on the faces (11').

14. (Amended) Method according to [one of the preceding claims] claim 1, characterized in that at least one recess (6') is made in the base body (1'), into which an elevation (7') on the processing element (2, 2') fits when the processing element (2, 2') and base body (1') are joined.

15. (Amended) Method according to [one of the preceding claims] claim 1, characterized in that the base body (1, 1') is embodied in annular form.

16. (Amended) Method according to [one of claims 1 through 14] claim 1, characterized in that the form of the base body (1, 1') is essentially that of an annular segment.

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PCT/EP00/10298

Method for Producing Fittings for the Mechanical Processing of a Fibrous Material
Suspension

[0001] The invention relates to a method for producing fittings according to the preamble of claim 1.

[0002] Fittings produced in this manner are used for the mechanical processing of suspended fibrous material. This means above all refining paper fibers, i.e., changing fiber properties, such as length, flexibility or surface. Fittings are mounted, e.g., in refiners. The suspension in refiners has a solids content of approx. 2 - 8 %, and even more in special machines. Such machines for higher stock consistencies are called, e.g., high consistency refiners, dispersers or kneader pulpers. Conventional machines have at least one rotor and at least one stator with either disk-shaped or conical surfaces on which the fittings are mounted, so that gaps can form between them. Many fittings feature ridges and grooves on the working surfaces, which is why they are also called "knife fittings." It is known that in addition to the shape of such ridges, the material they are made of also has an impact on the processing of the fibrous material.

[0003] The fittings are exposed to wear and therefore have to be replaced at certain intervals. Moreover, the wear can lead to a change in the processing effect during the operating lifetime, since form and surface of the fittings have a critical impact on the processing effect.

[0004] It is therefore understandable that a considerable expense is being devoted to developing fittings, which is reflected in the design of their shape and in the selection of the material. It has turned out that materials that are particularly suitable for the processing elements have properties that can be very problematic when they are used for the base body of the fitting.

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[0005] This applies in particular to materials that are very hard and brittle, such as, e.g., ceramics, and that therefore do not have the toughness necessary for the base body. Furthermore, such materials are relatively expensive and difficult to manufacture and can be processed only at great expense, compared with normal metallic materials.

[0006] The base body of a processing tool provides the connection between the processing elements and the other components, e.g., those of a refiner. Because of the high forces that occur in such a refiner, particularly exacting demands are made on the base body in terms of strength. It also needs to be possible to attach it securely to the refiner, for which, e.g., highly tightened screws are necessary. Due to these requirements, a particularly strong and tough material is necessary.

[0007] A method for producing fittings is already known from DE 197 54 807 A1, where they are assembled from parts manufactured separately. This publication suggests joining the processing element to the base body by means of vulcanization. There are cases in which this is not the best possible type of mounting.

[0008] With the mechanical processing methods mentioned at the outset, a heating of the fittings occurs. This is due to the high energy density of the processing procedure and is, e.g., particularly intense when higher stock consistencies are refined. Damage to the fittings can then occur, if the connected materials, e.g., ceramics and chromium steel, have different thermal expansion behaviors. The types of ceramics that are particularly suitable have a noticeably lower thermal expansion than chromium steel. As a result, the bond can rupture, which leads to a fatal fracture of the fitting. Moreover, ceramics of this type are very brittle, so that cracks can occur due to thermal expansion in the case of a rigid, flat bond or several rigid fastening points.

[0008.1] Rotor and stator disks for use in a refiner that is used for refining paper fibers are known from US 4,620,675. The disks feature processing elements that are directly secured to the disks used as rotors or stators, e.g., they are bonded to them. They are made of an elastic material in such a way that an axial flexibility of the processing elements is possible without having to displace the disks themselves. The same refining power is thus effective in all the refining gaps. This is therefore a special construction for those refiners that do not require detachable fittings. Various materials are given for achieving the elasticity of the disks, including a fiberglass/epoxy resin composite.

[0008.2] Fittings that are also suitable for use in a fibrous material refiner are known from US 5,836,525. Here a base body is provided with a wear resistant coating. Several alternatives are given for the material of the base body. It could be metal or plastic, e.g., polyamide or a mixture of epoxy resin and glass fibers or carbon fibers. A certain amount of choice of possible materials is also given for the coating of this base body, i.a., various types of ceramics. A fitting produced in this way is presumably relatively temperature-sensitive, i.e. it has only limited strength in fluctuating temperatures. Moreover, its manufacture is very difficult and costly.

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[0009] The object of the invention is to configure the method for producing fittings such that brittle materials that are particularly suitable can be used for the processing elements, and that the fittings are unaffected by heat.

[0010] This object is attained by the features specified in the characterizing part of claim 1.

[0011] With production methods of this kind, a different material is therefore used for the processing elements than for the base body as is known per se. This has the significant advantage that the material selection for the processing elements can be adapted to the desired processing technology, while a material with a high degree of strength and toughness is used for the base body. Plastic material is given a high degree of strength and toughness by embedded carbon fibers. These properties can be used to particular advantage to attain the object, if its thermal expansion behavior is adapted to that of the material preferred for the processing elements. Changing and thus regulating the thermal expansion behavior of carbon fiber reinforced plastic is absolutely possible. Thermal expansion coefficients can be "built in" and, if desired, even modified in different directions. There are also glass-fiber reinforced plastics with properties that can be adapted according to these requirements.

[0012] Fittings produced according to the invention have surface properties constant in time and are highly wear-resistant, mechanically sturdy, thermally insensitive and light in weight.

It should be noted that there are ceramic materials that have a thermal expansion behavior which can be adapted to that of steel, e.g., of chromium steel suitable for the base body. However, such materials are not so good at meeting the technical and economic demands made on the processing element.

[0013] The invention is explained by means of diagrammatic drawings. They show:

- Fig. 1 in perspective: a fitting produced according to the invention;
- Fig. 2 a fitting produced according to the invention in side view in section;
- Fig. 3 a typical refiner fitting in plan view;
- Fig. 4 and 5 in perspective: further fittings produced according to the invention.

[0014] Fig. 1 shows the base body 1 with a connected processing element 2. The strips 5 of the processing element 2 protrude around the projection c and have a plurality of faces 11, resulting in a refiner fitting, which is also called a knife fitting. A force-locked joint is made, e.g.,

by adhesion on the contact surface 3 of the processing element 2 and the contact surface 4 of the base body 1. The relatively thin adhesive layer thus formed is very strong and largely rigid, i.e., it is not elastic enough to be able to compensate alone for the thermal expansions.

[0015] Fig. 2 shows a similar fitting in side view. One can recognize the base body 1 in section with the processing element 2 mounted on it, which is provided with strips 5 of varying lengths. The shorter is drawn in section. The base body 1 is attached to the rotor 8 of the refiner by detachable connector elements 10, which rotor in turn is driven by the shaft 9. Of course, the fittings produced according to the method can also be attached to a stator.

[0016] Fig. 3 shows a typical refiner fitting in plan view. Segment-shaped processing elements 2 are located on the annular base body 1. These support strips 5 with a width b , are straight and in part of differing lengths. Curved strips or strips tilted more against the radius are also conceivable. The method according to the invention can also be used if processing elements 2' with faces 11' featuring an abrasive, porous surface, as shown in Fig. 4, are to be used instead of processing elements provided with strips.

[0017] In the example shown in Fig. 5, recesses 6 are made in the base body 1' into which the complementary elevations 7 of the processing element 2' fit such that a stop is formed on one side (left example). An exact positioning of the processing element can thus be made before connection, and the strength of the connection can be increased. Other elevations 7' can also fill recesses 6' and, e.g., be cast as well in the plastic of the base body (right example).

Other possibilities are conceivable for producing a strong bond between processing element and base body. As an alternative or in addition to a flat, i.e., force-locked join, a plurality of mounting elements distributed over the contact surface can join the two parts together with a form-locked join. If there are enough of them, the forces can be transferred evenly to the brittle processing element. The production of the fittings according to the invention also makes it possible to join the mating parts during the curing of the plastic.

Claims

1. Method for producing fittings for the mechanical processing, in particular refining, of suspended fibrous material, which fittings comprise at least one base body (1, 1') and at least one processing element (2, 2') that is wetted by the fibrous material suspension during operation of the fitting and composed at least mainly of ceramic material, with processing element (2, 2') and base body (1, 1') being produced separately and then joined together rigidly at their contact surfaces (3, 4), characterized in that the base body (1, 1') is made of a fiber reinforced plastic material with a thermal expansion behavior that has been adapted to that of the processing element (2, 2').
2. Method according to claim 1, characterized in that the base body (1, 1') is made of a glass-fiber reinforced plastic material.
3. Method according to claim 1, characterized in that the base body (1, 1') is made of a carbon fiber reinforced plastic material.
4. Method according to claim 1, 2 or 3, characterized in that the thermal expansion coefficient in the contact surfaces (3, 4) of the base body (1, 1') and of the processing element (2, 2') is identical within $\pm 25\%$.

5. Method according to claim 1, 2, 3 or 4 characterized in that the base body (1, 1') and processing element (2, 2') are joined together at their contact surfaces (3, 4) by adhesive forces.
6. Method according to claim 5, characterized in that the adhesive forces are applied by a largely rigid adhesive layer.
7. Method according to claim 6, characterized in that the thickness of the adhesive layer is no more than 0.5 mm.
8. Method according to one of the preceding claims, characterized in that the base body (1, 1') and the corresponding processing element (2, 2') are joined together by several spaced mounting elements.
9. Method according to one of the preceding claims, characterized in that strips (4) are produced towards the fibrous material side during manufacture of the processing element (2, 2').
10. Method according to claim 9, characterized in that the width (b) of the strips (4) is between 1 and 30 mm.
11. Method according to one of claims 9 or 10, characterized in that the strips (4) are provided with a projection (c) above the base of the groove, which is between 1 and 20 mm.
12. Method according to one of the preceding claims, characterized in that the processing elements (2, 2') are provided with an essentially smooth surface on the faces (11).
13. Method according to one of claims 1 through 11, characterized in that the processing elements (2, 2') are provided with an essentially porous surface (11) on the faces (11').

14. Method according to one of the preceding claims, characterized in that at least one recess (6') is made in the base body (1'), into which an elevation (7') on the processing element (2, 2') fits when the processing element (2, 2') and base body (1') are joined.
15. Method according to one of the preceding claims, characterized in that the base body (1, 1') is embodied in annular form.
16. Method according to one of claims 1 through 14, characterized in that the form of the base body (1, 1') is essentially that of an annular segment.
17. Fitting for refining suspended fibrous material, comprising a base body (1, 1') to be mounted in a refiner, and at least one connected processing element (2, 2') made of ceramic, which is wetted by the fibrous material suspension during operation of the fitting and then acts together with another processing element (2, 2') moved relative to it to achieve the refining effect, characterized in that the base body (1, 1') is made of a fiber reinforced plastic material and is rigidly joined to the processing element (2, 2') by a force-locked join over at least 80% of the contact surface.
18. Fitting for refining suspended fibrous material, comprising a base body (1, 1') to be mounted in a refiner, and at least one connected processing element (2, 2') made of ceramic, which is wetted by the fibrous material suspension during operation of the fitting and then acts together with another processing element (2, 2') moved relative to it to achieve the refining effect, characterized in that the base body (1, 1') is made of a fiber reinforced plastic material and is rigidly joined to the processing element (2, 2') by a force-locked join in points in at least two places.

(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES
PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum
Internationales Büro



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NL, PT, SE).

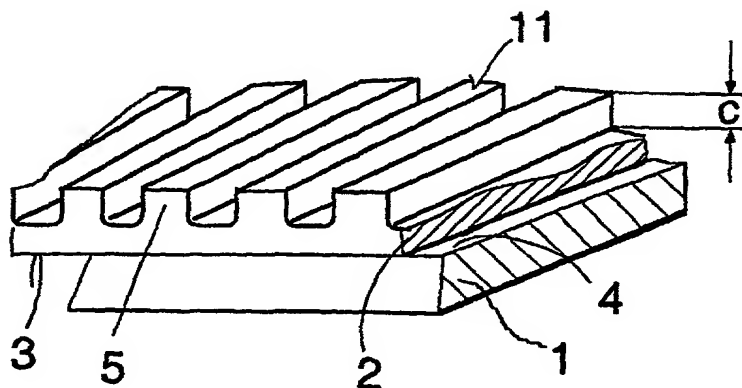
Veröffentlicht:

— Mit internationalem Recherchenbericht.

Zur Erklärung der Zweibuchstaben-Codes, und der anderen
Abkürzungen wird auf die Erklärungen ("Guidance Notes on
Codes and Abbreviations") am Anfang jeder regulären Ausgabe
der PCT-Gazette verwiesen.

(54) Title: METHOD FOR PRODUCING FITTINGS FOR THE MECHANICAL PROCESSING OF A FIBROUS MATERIAL
SUSPENSION

(54) Bezeichnung: VERFAHREN ZUR HERSTELLUNG VON GARNITUREN FÜR DAS MECHANISCHE BEARBEITEN
VON FASERSTOFFSUSPENSION



(57) Abstract: The invention relates to a method for producing fittings for processing paper fibrous material in which the actual processing element (2) and the base body (1) are separately manufactured, assembled and then interconnected in a fixed manner. The base body (1) is comprised of a fiber reinforced synthetic material comprising special thermal expansion properties. Beating and dispersion fittings are suited, in particular, for the inventive method.

(57) Zusammenfassung: Garnituren zur Bearbeitung von Papierfaserstoff werden bei dem erfindungsgemäßen Verfahren hergestellt, indem das eigentliche

Bearbeitungselement (2) und der Grundkörper (1) getrennt gefertigt, zusammengefügt und dann starr miteinander verbunden werden. Der Grundkörper (1) besteht aus einem faserverstärkten Kunststoffmaterial mit speziellen Wärmeausdehnungseigenschaften. Geeignet für das Verfahren sind insbesondere Mahl- und Dispergiergarnituren.

WO 01/36741 A1

1/2

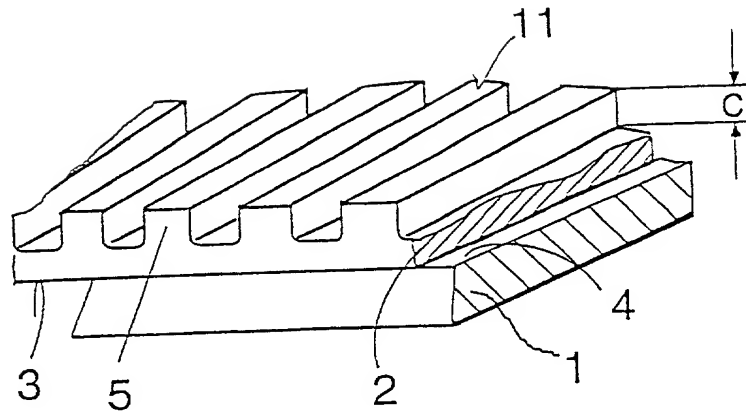


Fig.1

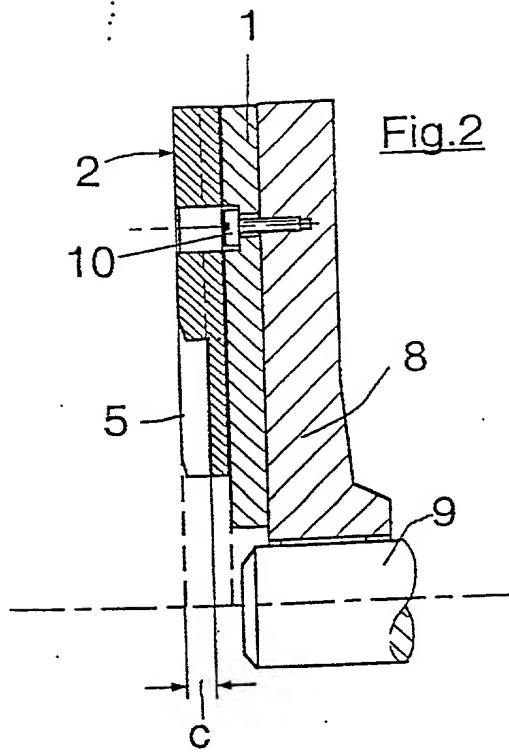


Fig.2

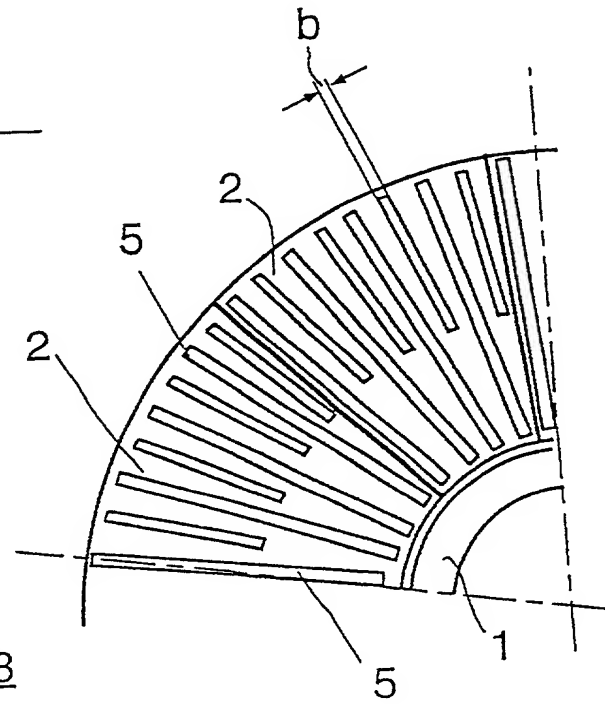


Fig.3

2/2

Fig.4

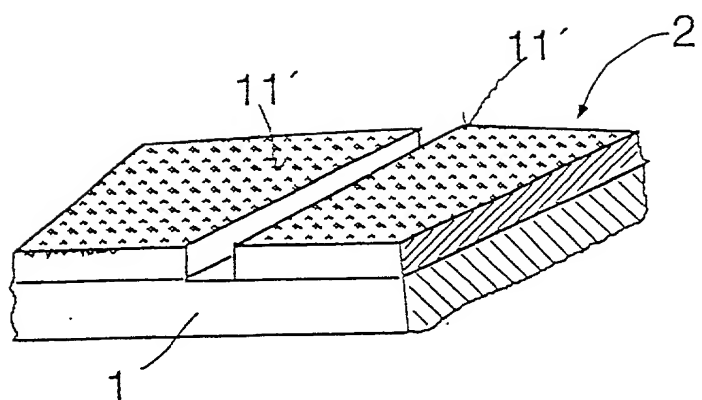
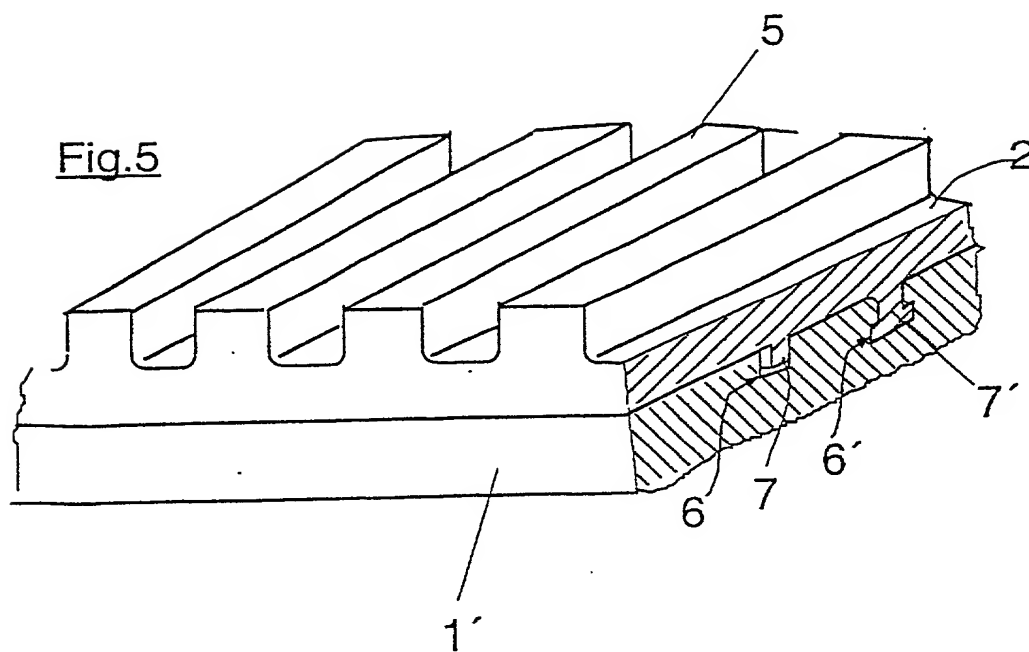


Fig.5



Declaration and Power of Attorney For Utility or Design Patent Application

Erklärung für Patentanmeldungen zur Gebrauchseignung und Entwicklung
mit Vollmacht

German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides
Statt:

daß mein Wohnsitz, meine Postanschrift und meine Staats-
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ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein
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(falls nachstehend mehrere Namen aufgeführt sind) des
Gegenstandes bin, für den dieser Antrag gestellt wird und für den
ein Patent für die Erfindung mit folgendem Titel beantragt wird:
VERFAHREN ZUR HERSTELLUNG VON GARNITUREN FÜR
DAS MECHANISCHE BEARBEITEN VON
FASERSTOFFSUSPENSION

deren Beschreibung hier beigefügt ist, es sei denn (in diesem Falle
Zutreffendes bitte ankreuzen), diese Erfindung

☒ wurde angemeldet am 19 Oktober 2000
unter der US-Anmeldenummer _____
und wurde am _____ abgeändert (falls zutreffend)
oder
unter der PCT internationalen Anmeldungsnummer
PCT/EP00/10298
und wurde am 22 June 2001 abgeändert (falls zutreffend).

Ich bestätige hiermit, daß ich den Inhalt der oben angegebene Paten-
tänmeldung, einschließlich der Ansprüche, die eventuell durch einen
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Auslandsanmeldungen für Patente oder Erfinderurkunden, oder §
365(a) aller PCT internationalen Anmeldungen, welche wenigstens
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Anmeldungen angegeben, deren Anmeldetag dem der Anmeldung,
für welche Priorität beansprucht wird, vorangeht.

Prior Foreign Applications
Frühere ausländische Anmeldungen

<u>199 55 009.3</u>	<u>Germany</u>	<u>16/November/1999</u>
(Number)	(Country)	(Day/Month/Year Filed)
(Nummer)	(Land)	(Tag/Monat/Jahr der Anmeldung)
_____	_____	_____
(Number)	(Country)	(Day/Month/Year Filed)
(Nummer)	(Land)	(Tag/Monat/Jahr der Anmeldung)

☐ Zusätzliche einstweilige Anwendungsnummern sind im
Prioritätsanhang aufgeführt.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated
below next to my name.

I believe I am the original, first and sole inventor (if only one
name is listed below) or an original, first and joint inventor (if
plural names are listed below) of the subject matter which is
claimed and for which a patent is sought on the invention entitled

METHOD FOR PRODUCING FITTINGS FOR THE
MECHANICAL PROCESSING OF A FIBROUS MATERIAL
SUSPENSION

the specification of which is attached hereto unless the following
box is checked:

☒ was filed on 19 October 2000 as
United States Application Number _____
and was amended on _____ (if applicable)
or,

PCT International Application Number PCT/EP00/10298
and was amended on 22 June 2001 (if applicable).

I hereby state that I have reviewed and understand the contents of
the above identified specification, including the claims, as
amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material
to patentability as defined in Title 37, Code of Federal
Regulations, §1.56.

I hereby claim foreign priority under Title 35, United States Code
§119 (a-d) or §365(b) of any foreign application(s) for patent or
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application which designated at least one country other than the
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Priority Claimed
Prioritätsanspruch

<input checked="" type="checkbox"/>	<input type="checkbox"/>
Yes	No
Ja	Nein
<input type="checkbox"/>	<input type="checkbox"/>
Yes	No
Ja	Nein

☐ Additional foreign application numbers are listed
on a supplemental priority sheet attached hereto.

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Ich beanspruche hiermit Prioritätsvorteile unter Title 35, US-Code, § 119(e) aller US-Hilfsanmeldungen wie unten aufgezählt.

(Application Number)
(Aktenzeichen)

(Application Number)
(Aktenzeichen)

(Application Number)
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(Application No.)
(Aktenzeichen)

(Day/Month/Year Filed)
(Tag/Monat/Jahr eingereicht)

(Application No.)
(Aktenzeichen)

(Day/Month/Year Filed)
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(Day/Month/Year Filed)
(Tag/Monat/Jahr der Anmeldung)

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- ☐ Additional provisional application numbers are listed on a supplemental priority sheet attached hereto.

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(Status)
(patentiert, schwebend, aufgegeben)
(patented, pending, abandoned)

(Status)
(patentiert, schwebend, aufgegeben)
(patented, pending, abandoned)

- ☐ Additional U.S. or international application numbers are listed on a supplemental priority sheet attached hereto.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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GREENBLUM & BERNSTEIN

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CUSTOMER NUMBER 7055

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German Language Utility or Design Patent Application Declaration

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